



MDAQMD

California Environmental Quality Act (CEQA)

And

Federal Conformity

Guidelines

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Planning and Rule Making Section
Surveillance Section

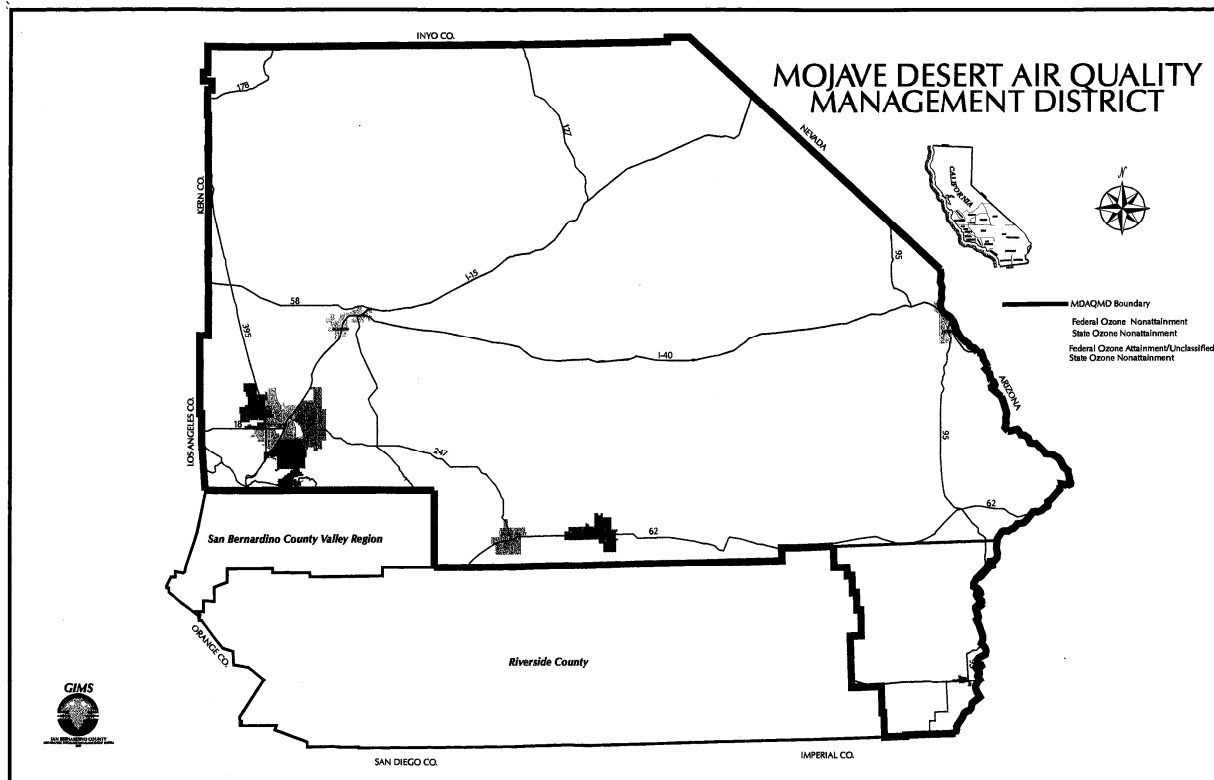
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Background

Under CEQA, the Mojave Desert Air Quality Management District (District) is an expert commenting agency on air quality and related matters within its jurisdiction or impacting on its jurisdiction. Under the Federal Clean Air Act the District has adopted federal attainment plans for ozone and PM₁₀. The District has dedicated assets to reviewing projects to ensure that they will not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan. These Guidelines are intended to assist persons preparing environmental analysis or review documents for any project within the jurisdiction of the District by providing background information and guidance on the preferred analysis approach.

Map 1 - District Boundaries



Jurisdiction

The District has jurisdiction over the desert portion of San Bernardino County and the far eastern end of Riverside County (please refer to Map 1). This region includes the incorporated communities of Adelanto, Apple Valley, Barstow, Blythe, Hesperia, Needles, Twentynine Palms, Victorville, and Yucca Valley. This region also includes the National Training Center at Fort Irwin, the Marine Corps Air Ground Combat Center, the Marine Corps Logistics Base, the eastern portion of Edwards Air Force Base, and a portion of the China Lake Naval Air Weapons Station.

Non-attainment Designations and Classification Status

The United States Environmental Protection Agency and the California Air Resources Board have designated portions of the District non-attainment for a variety of pollutants, and some of those designations have an associated classification. Please refer to Table 1 for a chart of these designations and classifications.

Table 1 - Designations and Classifications

Ambient Air Quality Standard	AVAQMD	MDAQMD
One-hour Ozone (Federal) – standard has been revoked, this is historical information only	Non-attainment; classified Severe-17	Non-attainment; classified Severe-17 (portion of MDAQMD outside of Southeast Desert Modified AQMA is unclassified/attainment)
Eight-hour Ozone (Federal 84 ppb)	Non-attainment; classified Severe-17	Non-attainment; classified Severe-17 (portion of MDAQMD outside of Western Mojave Desert Ozone Non-attainment Area is unclassified/attainment)
Eight-hour Ozone (Federal 75 ppb)	Non-attainment (expected)	Non-attainment (expected)
Ozone (State)	Nonattainment; classified Extreme	Non-attainment; classified Moderate
PM ₁₀ (Federal)	Unclassified	Non-attainment; classified Moderate (portion of MDAQMD in Riverside County is unclassified, and the portion in the Searles Valley is attainment)
PM _{2.5} (Federal)	Unclassified/attainment	Unclassified/attainment
PM _{2.5} (State)	Unclassified	Non-attainment (portion of MDAQMD outside of Western Mojave Desert Ozone Non-attainment Area is unclassified/attainment)
PM ₁₀ (State)	Non-attainment	Non-attainment
Carbon Monoxide (State and Federal)	Attainment	Attainment
Nitrogen Dioxide (State and Federal)	Attainment/unclassified	Attainment/unclassified

Ambient Air Quality Standard	AVAQMD	MDAQMD
Sulfur Dioxide (State and Federal)	Attainment/unclassified	Attainment/unclassified
Lead (State and Federal)	Attainment	Attainment
Particulate Sulfate (State)	Unclassified	Attainment
Hydrogen Sulfide (State)	Unclassified	Unclassified (Searles Valley Planning Area is non-attainment)
Visibility Reducing Particles (State)	Unclassified	Unclassified

Attainment Plans

The District has adopted a variety of attainment plans for a variety of non-attainment pollutants. Please refer to Table 2 for a chart of these attainment plans.

Table 2 – MDAQMD Attainment Plans

Name of Plan	Date of Adoption	Standard(s) Targeted	Applicable Area	Pollutant(s) Targeted	Attainment Date*
1991 Air Quality Attainment Plan	26-Aug-91	State one hour ozone	San Bernardino County portion	NO _x and VOC	1994
Reasonable Further Progress Rate-Of-Progress Plan	26-Oct-94	Federal one hour ozone	Southeast Desert Modified AQMA	NO _x and VOC	2007
Post 1996 Attainment Demonstration and Reasonable Further Progress Plan	26-Oct-94	Federal one hour ozone	Southeast Desert Modified AQMA	NO _x and VOC	2007
Searles Valley PM ₁₀ Plan	28-Jun-95	Federal daily and annual PM ₁₀	Searles Valley Planning Area	PM ₁₀	1994
Mojave Desert Planning Area Federal Particulate Matter Attainment Plan	31-Jul-95	Federal daily and annual PM ₁₀	Mojave Desert Planning Area	PM ₁₀	2000
Triennial Revision to the 1991 Air Quality Attainment Plan	22-Jan-96	State one hour ozone	Entire District	NO _x and VOC	2005
Attainment Demonstration, Maintenance Plan, and Redesignation Request for the Trona Portion of the Searles Valley PM ₁₀ Non-attainment Area	25-Mar-96	Federal daily and annual PM ₁₀	Searles Valley Planning Area	PM ₁₀	N/A

Name of Plan	Date of Adoption	Standard(s) Targeted	Applicable Area	Pollutant(s) Targeted	Attainment Date*
2004 Ozone Attainment Plan (State and Federal)	26-Apr-04	Federal one hour ozone	Entire District	NO _x and VOC	2007
Federal 8-Hour Ozone Attainment Plan (Western Mojave Desert Non-attainment Area)	9-Jun-08	Federal eight hour ozone (84 ppb)	Western Mojave Desert Non-attainment Area (MDAQMD portion)	NO _x and VOC	2021

*Note: A historical attainment date given in an attainment plan does not necessarily mean that the affected area has been re-designated to attainment; please refer to Table 1.

Rules and Regulations

The District maintains a set of Rules and Regulations to improve air quality and maintain good air quality. Please contact the District to obtain a copy of the District rulebook, or visit www.mdaqmd.ca.gov/rules_plans/rules_plans.htm .

Recommended Environmental Setting Elements

Air Quality Data

The District gathers a variety of air quality data from a variety of monitoring sites (from the USMC AGCC site on contract). Table 3 details the data available from the District for each monitoring site.

Table 3 - Available Air Quality Data

Site	Address	Pollutants	Dates
Barstow	225 E. Mountain View	O ₃ , NO _x , CO, PM ₁₀	5/1/80 to present
Hesperia	17288 Olive	O ₃ , PM ₁₀	1/2/86 to present
Lucerne Valley	8560 Aliento Road	PM ₁₀	6/1/89 to present
Phelan	Beekley Road	O ₃	1/1/88 to present
Trona	Market Street	O ₃ , NO _x , SO ₂ , H ₂ S, PM ₁₀	8/1//80 to 2/13/93
Trona	Athol Street	O ₃ , NO _x , SO ₂ , H ₂ S, PM ₁₀	1/25/93 to 3/1997
Trona	Telescope	O ₃ , NO _x , SO ₂ , H ₂ S, PM ₁₀ (Hi-Vol and TEOM)	4/1997 to present
Twentynine Palms	Adobe	O ₃ , NO _x , SO ₂ , CO, PM ₁₀	8/1/80 to 12/2005
USMC AGCC Twentynine Palms	Bldg 700	O ₃ , NO _x , SO ₂ , CO, PM ₁₀ (TEOM)	1/2006 to present
Victorville	County Fairgrounds	O ₃ , NO _x , SO ₂ , CO, TSP	8/1980 to 12/1985

Site	Address	Pollutants	Dates
Victorville	Eighth Street	O ₃ , NO _x , SO ₂ , CO, TSP	1/1985 to 12/1989
Victorville	County Fairgrounds	O ₃ , NO _x , SO ₂ , CO, PM ₁₀	1/1990 to 4/1991
Victorville	Amargosa Road	O ₃ , NO _x , SO ₂ , CO, PM ₁₀	4/1991 to 12/1999
Victorville	Park Avenue	O ₃ , NO _x , SO ₂ , CO, PM _{2.5} (dual co-located), PM ₁₀ (Hi-Vol and TEOM)	1/2000 to present

Meteorological Data

A variety of meteorological data is available from the District for several monitoring sites throughout the District. Table 4 contains a list of monitoring sites and the data available for each site.

Table 4 - Available Meteorological Data

Site	Address	Data	Dates
Barstow	225 E. Mountain View	Wind speed (hourly average and peak), wind direction, temperature, barometric pressure	1/1988 to present
Hesperia	17288 Olive Street	Wind speed (hourly average and peak), wind direction, temperature, barometric pressure	1/1988 to present
Phelan	Beekley Road	Wind speed (hourly average and peak), wind direction, temperature	1/88 to present
Trona	Athol Street	Wind speed (hourly average and peak), wind direction, pressure, temperature	2/1993 to 3/1997
Trona	Telescope	Wind speed (hourly average and peak), wind direction, pressure, temperature	4/1997 to present
Twentynine Palms	W. Adobe	Wind speed (hourly average and peak), wind direction, pressure, temperature	1/1988 to 12/2005
USMC AGCC Twentynine Palms	Bldg. 700	Wind speed (hourly average and peak), wind direction, pressure, temperature	1/2006 to present
Victorville	Amargosa Road	Wind speed (hourly average and peak), wind direction, pressure, temperature, solar radiation	4/91 to 12/1999

Site	Address	Data	Dates
Victorville	Park Avenue	Wind speed (hourly average and peak), wind direction, pressure, temperature, solar radiation	1/2000 to present

Topography and Climate Discussion

The District covers the majority of the Mojave Desert Air Basin (MDAB). The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains which dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada mountains to the north; air masses pushed onshore in southern California by differential heating are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses. The Antelope Valley is bordered in the northwest by the Tehachapi Mountains, separated from the Sierra Nevadas in the north by the Tehachapi Pass (3,800 ft elevation). The Antelope Valley is bordered in the south by the San Gabriel Mountains, bisected by Soledad Canyon (3,300 ft). The Mojave Desert is bordered in the southwest by the San Bernardino Mountains, separated from the San Gabriels by the Cajon Pass (4,200 ft). A lesser channel lies between the San Bernardino Mountains and the Little San Bernardino Mountains (the Morongo Valley).

The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley) whose primary channel is the San Gorgonio Pass (2,300 ft) between the San Bernardino and San Jacinto Mountains.

During the summer the MDAB is generally influenced by a Pacific Subtropical High cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist and unstable air masses from the south. As can be seen from Table 5, the MDAB averages between three and seven inches of precipitation per year (from 16 to 30 days with at least 0.01 inches of precipitation). The MDAB is classified as a dry-hot desert climate (BWh), with portions classified as dry-very hot desert (BWbh), to indicate at least three months have maximum average temperatures over 100.4° F.

Table 5 - MDAB Average Precipitation and Evaporation History

Location	Precipitation (inches)	Precipitation (days)	Evaporation (inches)	Length of Observations (years)
Trona	3.82	16		48
Randsburg	5.89	23		48
China Lake	4.42			34
Goldstone Echo	5.42	20		23
Daggett Airport	3.87	23		48

Location	Precipitation (inches)	Precipitation (days)	Evaporation (inches)	Length of Observations (years)
Barstow Fire	4.60	23		16
Barstow CIMIS	5.10	27	70	22
Granite Mountain	5.76	22		5
Victorville CIMIS	7.30	29	63	15
Mitchell Caverns	10.41	32		38
Mountain Pass	7.63	28		41
Parker Reservoir	5.38	24		48
Needles Airport	4.55	23		48
Twentynine Palms	3.95	19		48
Blythe Airport	3.57	17		48
Iron Mountain	3.40	19		48

Recommended Impacts Discussion Elements

Direct Impacts

Direct impacts are the result of the project itself (from its construction and operation), in the form of project activity and trips generated by the project. For example, in the case of a subdivision project, construction emissions (equipment exhaust, wind erosion, vehicle exhaust), housing use activity (natural gas consumption) and trips to and from the housing (vehicle exhaust, tire wear) represent direct impacts. In the case of a new mine project, construction emissions (equipment exhaust, wind erosion, vehicle exhaust), material handling (drilling, blasting, transfers, crushing, screening, bagging), operational emissions (wind erosion, vehicle travel, vehicle exhaust, tire wear), and employee/customer/delivery travel (vehicle exhaust, tire wear) represent direct impacts.

Indirect Impacts

Indirect impacts are the result of changes that would not occur without the project. In the case of a subdivision project, indirect impacts on the surrounding community can be generated in many ways: nearby construction of roadways (or roadway modifications) and other infrastructure to support the subdivision, construction and operation of new commercial/retail establishments, changes in traffic/circulation patterns that result in increased congestion/delays, etc. In the case of a new mine project, indirect impacts can be generated by nearby construction of infrastructure to support the mine, housing constructed and/or occupied by mine employees, changes in traffic/circulation patterns that result in increased congestion/delays, etc.

Cumulative Impacts

Cumulative impacts are similar to direct and indirect impacts of the project, which the project contributes to. In the case of a subdivision project, a given project has a cumulative impact with all other subdivision projects, from the standpoint of each type of impact (cumulative construction emissions, residential natural gas consumption, solvent use, transportation

emissions, congestion, etc.). Similarly, a new mine project has a cumulative impact with all other mining projects, from the standpoint of each type of impact (cumulative construction emissions, diesel equipment emissions, blasting emissions, fugitive emissions, transportation, congestion, etc.).

Conformity Impacts

A project is non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable District rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Conformity with growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast. An example of a non-conforming project would be one that increases the gross number of dwelling units, increases the number of trips, and/or increases the overall vehicle miles traveled in an affected area (relative to the applicable land use plan).

Sensitive Receptor Land Uses

Residences, schools, daycare centers, playgrounds and medical facilities are considered sensitive receptor land uses. The following project types proposed for sites within the specified distance to an existing or planned (zoned) sensitive receptor land use must be evaluated using significance threshold criteria number 4 (refer to the significance threshold discussion):

- Any industrial project within 1000 feet;
- A distribution center (40 or more trucks per day) within 1000 feet;
- A major transportation project (50,000 or more vehicles per day) within 1000 feet;
- A dry cleaner using perchloroethylene within 500 feet;
- A gasoline dispensing facility within 300 feet.

Recommended Substantiation Discussion Elements

For projects applying the emissions-based significance thresholds, project emissions quantification is required. In addition the environmental documentation must include support for the quantification methodology used, including emission factors, emission factors source, assumptions, and sample calculations where necessary. For projects using a calculation tool such as URBEMIS, the support section must specify the inputs and settings used for the evaluation.

Significance Thresholds

Any project is significant if it:

1. Generates total emissions (direct and indirect) in excess of the thresholds given in Table 6; and/or,
2. Generates a violation of any ambient air quality standard when added to the local background;* and/or,

3. Does not conform with the applicable attainment or maintenance plan(s) ^{1,*} and/or,
4. Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 1.*†

** These significance thresholds are not applicable to all projects. Contact the District to clarify whether your project should be evaluated under these thresholds. In general, the emissions comparison (criteria number 1) is sufficient.*

† Refer to the Sensitive Receptor discussion above

A significant project must incorporate mitigation sufficient to reduce its impact to a level that is not significant. A project that cannot be mitigated to a level that is not significant must incorporate all feasible mitigation. Note that the emission thresholds are given as a daily value and an annual value, so that multi-phased project (such as project with a construction phase and a separate operational phase) with phases shorter than one year can be compared to the daily value.

Table 6 – Significant Emissions Thresholds

Criteria Pollutant	Annual Threshold (tons)	Daily Threshold (pounds)
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NO _x)	25	137
Volatile Organic Compounds (VOC)	25	137
Oxides of Sulfur (SO _x)	25	137
Particulate Matter (PM ₁₀)	15	82
Particulate Matter (PM _{2.5})	15	82
Hydrogen Sulfide (H ₂ S)	10	54
Lead (Pb)	0.6	3

District Contacts

If an address is not listed, use the general address for the District, to the attention of the listed individual.

Mojave Desert Air Quality Management District General	(760) 245-1661 x2574 14306 Park Avenue Victorville, CA 92392-2310
Rulebook	Vilma Landsman (760) 245-1661 x6728
Air Quality and Meteorological Data	Paul “Tony” Malone (760) 245-1661 x1956
CEQA and Conformity	Alan De Salvio (760) 245-1661 x6726
Permitting	Barbara Weese (760) 245-1661 x1882

¹ A project is deemed to not exceed this threshold, and hence not be significant, if it is consistent with the existing land use plan. Zoning changes, specific plans, general plan amendments and similar land use plan changes which do not increase dwelling unit density, do not increase vehicle trips, and do not increase vehicle miles traveled are also deemed to not exceed this threshold.

Appendix A – Basic Definitions of Major Air Pollutants

Technical and/or legal definitions exist for many of these pollutants, depending on context. The following definitions are for general, introductory purposes only:

Carbon Dioxide (CO₂) – Common product of combustion. Not a criteria pollutant, but considered an important “greenhouse gas.” Important on a national or global scale.

Carbon Monoxide (CO) – Common product of incomplete combustion. A criteria pollutant with state and federal standards. Not a primary photochemical reaction compound, but involved in photochemical reactions. Dissipates rapidly, and is therefore only important on a local scale near sources.

Criteria Pollutants – Those air pollutants specifically identified for control under the Federal Clean Air Act (currently six: carbon monoxide, nitrogen oxides, lead, sulfur oxides, ozone and particulates).

Lead (Pb) – A heavy metal, present in the environment mainly due to historical use in motor vehicle fuel. Primarily associated with lead smelting operations. A criteria pollutant with state and federal standards. Primarily of concern near sources.

Oxides of Nitrogen (NO_x) – Common product of combustion in the presence of nitrogen. Includes NO₂, which is a criteria pollutant with state and federal standards. Locally and regionally important due to its involvement in the photochemical formation of ozone.

Oxides of Sulfur (SO_x) – Common product of combustion in the presence of sulfur. Associated primarily with diesel and coal burning. Includes SO₂, a criteria pollutant with state and federal standards. Primarily of concern near sources.

Ozone (O₃) – A gas mainly produced by a photochemical reaction between reactive organic gases and oxides of nitrogen in the presence of sunlight (also produced by molecular oxygen in the presence of ultraviolet light or electrical discharge). A strong oxidant that is damaging at ground level but necessary at high altitude (in the stratosphere, where it absorbs dangerous ultraviolet light). Also considered an important greenhouse gas. A criteria pollutant with state and federal standards.

Particulate Matter (TSP or PM₃₀) – Solid or liquid matter suspended in the atmosphere, excluding water. Includes aerosols and droplets that form in the atmosphere. Locally and regionally important.

Reactive/Volatile Organic Compounds/Gases (ROG, VOC, NMOG, NMOC) – A portion of total organic compounds or gases, excludes methane, ethane and acetone (due to low photochemical reactivity). “ROG” is generally used by the California Air Resources Board, “VOC” is generally used by the United States Environmental Protection Agency, but all four terms are interchangeable for most uses. Regionally important due to its involvement in the photochemical reaction that produces ozone.

Respirable Particulate Matter (coarse or PM₁₀, and fine or PM_{2.5}) – That portion of particulate matter that tends to penetrate into the human lung. The subscript refers to aerodynamic diameter. Criteria pollutants with state and federal standards. Locally and regionally important.

Total Organic Compounds/Gases (TOC or TOG) – Compounds containing at least one atom of carbon, except carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and metallic carbonates. Primarily methane in the atmosphere, a “greenhouse gas.”